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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/670,467	09/26/2003	Brian L. Mark	GMU-03-004U	7398

28598 7590 05/16/2006		EXAMINER
GEORGE MASON UNIVERSITY		JACKSON, BLANE J

ART UNIT	PAPER NUMBER
2618	

GEORGE MASON UNIVERSITY
OFFICE OF TECHNOLOGY TRANSFER, MSN 5G5
4400 UNIVERSITY DRIVE
FAIRFAX, VA 22030

DATE MAILED: 05/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>09 September 2003</u>.
2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) *1-24* is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☒ The drawing(s) filed on <u>09 September 2003</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by
another filed in the United States before the invention by the applicant for patent or (2) a patent
granted on an application for patent by another filed in the United States before the invention by the
applicant for patent, except that an international application filed under the treaty defined in section
351(a) shall have the effects for purposes of this subsection of an application filed in the United States
only if the international application designated the United States and was published under Article 21(2)
of such treaty in the English language.

Claims 1-24 are rejected under 35 U.S.C. 102(e) as being anticipated by

Nobuyasu et al. (US 6,597,673).

As to claims 1 and 13, Nobuyasu teaches a cellular network handoff modeler and

method for evaluating the performance of cellular network handoff decisions comprising:

Creating a reverence cellular network description describing:

A cellular network geometry (figure 6, column 8, lines 25-35),

A signal propagation description (column 10, lines 12-16, path loss component),

At least two base stations having:

A location within said cellular network geometry (figure 6, column 8, lines

25-53),

A pilot signal having a pilot signal strength (column 10, lines 12-16, CDMA

system where the mobile station tracks the field strength of the pilot signal

from the nearby base stations),

At least one mobile unit capable of:

Moving along a trajectory and

Sampling said pilot signal strength (figure 6, column 10, lines 12-16,

mobile station (51) moving from the area of base station (A) to base

station (B)), and

Creating reduced geometric structures from said reference cellular network

description (figure 3B, column 9, line 54 to column 10, line 3, system parameter setting

unit (57) determines hexagonal handoff area rings around the base station),

Representing a general trajectory for said mobile unit in said reference cellular

network description (figure 6, column 10, lines 12-16, mobile station movies towards the

base station (53) while communicating with base station (52)),

Approximating said general trajectory with a piecewise path having a multitude of

handoff decision points (figure 3B, column 9, line 62 to column 10, line 11, mobile

station moves towards the base station across boundaries of cell perimeter areas, each

boundary forms the decision point for the number of soft handoff branches),

Selecting a handoff mechanism (column 9, line 54 to column 10, line 3,

parameter setting unit (57) is programmed for one of a plurality of area ratio to

determine the maximum number of soft handoff branches of each of the cell perimeter

area),

Selecting handoff parameters (column 10, lines 12-29, level of field strength in

each cell perimeter area to determine soft handoff request(s)),

Creating a discrete-time formulation characterizing handoff behaviors and

Calculating at least one handoff performance metric along at least one said

handoff decision point (column 10, lines 30-46, arrangement to reduce a decline in

channel capacity with respect to a change in soft handoff rate).

As to claims 2 and 14, Nobuyasu teaches according to claims 1 and 13, wherein

at least one of said at least one handoff performance metric includes an overall

signaling load incurred by said handoff mechanism (figure 3B, column 10, lines 30-46,

the optimum number of soft handoff branches depending upon the position of the

mobile station).

As to claims 3 and 15, Nobuyasu teaches according to claims 1 and 13 wherein

said cellular network geometry includes a hexagonal cell pattern (figure 3B).

As to claims 4 and 16, Nobuyasu teaches according to claims 1 and 13 wherein

said cellular network geometry includes cells mapped into at least one reduce geometric

structure (figures 1A-1C, 2B, 3B and 4B, column 5, line 38 to column 6, line 10).

As to claims 5 and 17, Nobuyasu teaches according to claims 4 and 16, wherein

said cellular network geometry includes reduce geometric structures mapped into at

least one minimum geometric structure (figure 3B, hexagon depicted).

As to claims 6 and 18, Nobuyasu teaches according to claims 1 and 13, wherein said signal propagation description includes at least a path loss component (column 8, lines 25-53, the system parameter setting unit (57) sets various system parameters including the number of soft handoff branches in each perimeter area of a cell and the boundary reception field strength of each area where it is determined the pilot field strength increases as the mobile station approaches the base station with the mobile request for soft handoff).

As to claims 7 and 19, Nobuyasu teaches according to claims 1 and 13 wherein said piecewise path is a piecewise linear path (figure 6, mobile station (51) moves and approaches the base station (53) while communication and departing base station (52), column 10, lines 12-16).

As to claims 8 and 20, Nobuyasu teaches according to claims 1 and 13 wherein said step of selecting a handoff mechanism includes selecting a hard handoff mechanism (figure 3B, column 9, line 62 to column 10, line 3, mobile station movies into cell perimeter area 12 for a soft handoff branch of one or hard handoff).

As to claims 9 and 21, Nobuyasu teaches according to claims 1 and 13, wherein said step of selecting a handoff mechanism includes selecting a soft handoff mechanism (figure 3B, column 9, line 62 to column 10, line 3, mobile station movies into cell perimeter area 13 for a soft handoff branch of three).

As to claims 10 and 22, Nobuyasu teaches according to claims 1 and 13 wherein said step of selecting a handoff mechanism considers at least relative pilot signal strengths (figure 6, column 8, lines 25-53 and column 1, line 58 to column 2, line 33, mobile station tracking the pilot channel in a CDMA system).

As to claims 11 and 23, Nobuyasu teaches according to claims 1 and 13, wherein said handoff parameters include a handoff decision interval (figure 3B, column 9, line 54 to column 10, line 3, the position of the mobile station in each cell perimeter area (12, 13, 14) form handoff decision intervals).

As to claims 12 and 24, Nobuyasu teaches according to claims 1 and 13, wherein said step of calculating at least one handoff performance metric along at least one said handoff decision point uses a recursive procedure (figure 6, system parameter setting unit (57) is consider a computer processing system capable of repeating the calculation of system parameters).
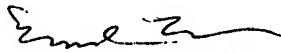
Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Santhoff et al. (US 2005/0048978), Smith et al. (US 2005/0079878) and Raith (US 6,711,408).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Blane J. Jackson whose telephone number is (571) 272-7890. The examiner can normally be reached on Monday through Friday, 9:00 AM-6:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Urban can be reached on (571) 272-7899. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

BJJ

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